



12 Secrets to Acing Chemistry (While Studying Less and Having More Free Time)

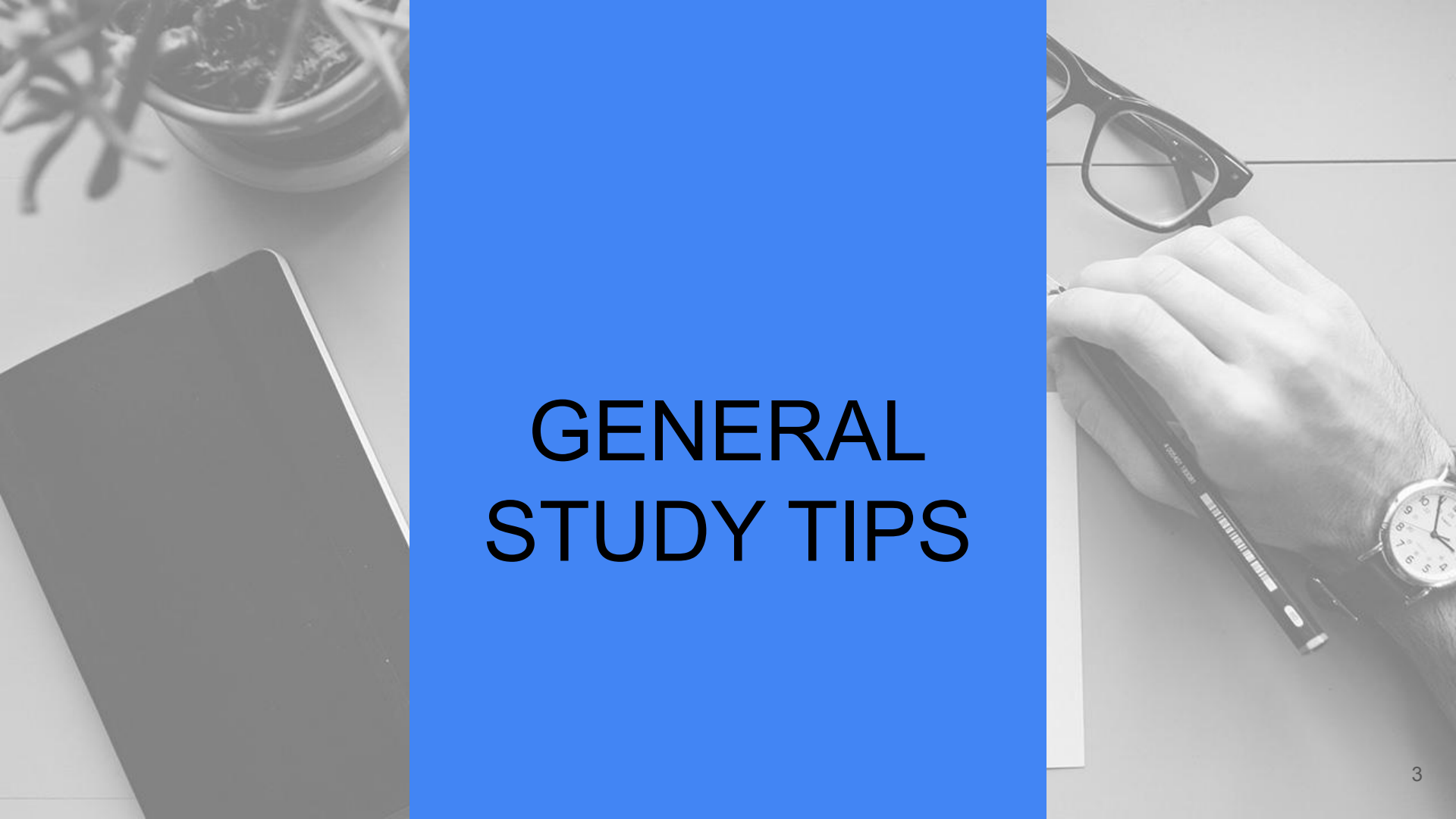


Introduction

As human beings with limited time, energy, and resources, we naturally desire to get the most done with the least amount of work possible.

After getting a D+ on my first chemistry exam, I made it my mission to figure out how to ace (conquer) chemistry. From reading books, researching, and experimenting, I have accumulated a collection of techniques that turned my D+ into an A and has allowed me to achieve a 3.93 GPA at UC Berkeley while studying less than three hours a day.

Below are some of these techniques. Although I have separated them into general academic and chemistry specific section, these study tips can be applied to every class you will ever take in school. Furthermore, some of these tips, especially the blocking technique, will skyrocket your ability to get more done in less time not only in school, but in life in general. I hope these tips will benefit you as much as they have and continue to help me.



GENERAL STUDY TIPS

Tip 1:

Use the P, NT, R System

How much of an advantage would you have over your classmates if you have learned the material three times before they have even learned it once?

This technique allows you to do just that. P, TN, R stands for preview, take notes, and review.

Preview the material before class. This will look different depending on your teacher. If your teacher uploads powerpoints or notes prior to class, read over them. If your teacher assigns textbook reading, skim through the reading. Most textbooks have a summary section at the end of the chapter highlighting the main ideas. Read that and then look through the examples presented in the chapter, paying attention to what's asked and how it was solved.

If any questions come up as you're previewing, write them down. Most students usually just come to class unprepared and clueless about what they're learning.

By previewing, you'll be a head start because you'll know what to expect during class. Number of times learning the material. You: 1. Regular student: 0.

Take detailed notes during class. You already have a basic understanding of the material because you have previewed. You also already have a sense of what the main concepts are and what you don't understand. Build on that by writing down notes that are related to those main points. If you wrote down questions during the preview process, try to find the answer to those questions in class. If there's anything you didn't understand in class, make a note of it. By paying attention and taking detailed notes, you'll continue to build on your lead. Number of times learning the material. You: 2. Regular student: 0.5, maybe 1.

Review the material as soon as you can after class, ideally immediately. If not immediately, definite same day. Look over your notes, and then summarize the key points of the

lecture. It is crucial to review as soon as you can because you are cementing what you learned from short term into long term memory. Most students fail to review asap and don't look at their notes again until days before exams. Number of times learning the material. You: 3. Regular student: 0.5, maybe 1.

This may seem like a lot of additional work, but in reality, it really isn't. Previewing may take at most twenty minutes. You're already in class so you might as well pay attention and take notes. Reviewing may only take another ten minutes. All together, you may be spending an additional twenty to thirty minutes, but you'll be saving yourself hours down the road when most students have to relearn the material because they never adequately learned it the first time.

Tip 2: Study in purely focused blocks

Our body functions in cycles. For example, our circadian rhythm dictates when we wake and sleep. Likewise, our brains also work in cycles. The human mind can only focus so long before it fatigues. It is much smarter to follow the natural Ultradian rhythm instead of going against it.

Follow the 50-10-50-30 rule.

Work on one subject uninterrupted for fifty minutes. I recommend using a stopwatch app on your phone. Turn off all distraction. No notifications, no disruptions.

Set the timer to fifty minutes then begin working. You'll find that after the first twenty minutes or so, you'll enter a flow state. You'll start flying through the material and before you know it, fifty minutes is up.

After the fifty minute is up, set the timer for ten minutes and relax completely. Watch videos, go on social media, talk with friends, walk around, etc.

Then work for another fifty minute block period. Again, no distractions. It is best to work on the same subject if you haven't finished since your mind is still in that state.

After those fifty minutes are up, relax completely for thirty minutes. Get up and move around, eat a meal, or take a nap. Allow your brain to recharge. If you haven't finished everything you set out to do, you can do another 50-10-50-30 cycle.

If you choose to implement just one study tip, implement this one! It takes some discipline, but if you really follow the time guideline and work with interruptions, you'll be two or three times more efficient. You'll get more done in two hours than you could have ever imagined.

For a lighter alternative, try the Pomodoro Technique. It's an app you can download on your phone.

Tip 3: Learn material the first time around

Learn the material the first time it is presented. Get into the habit of identifying what you know and don't know. If you run into something you don't understand in class or while studying, write down questions or make a note of what you don't understand. Then commit yourself to learning that concept as soon as you can, preferably in the same day.

Re-read the book, attend office hours, search online, ask a tutor, but learn it no matter what. The concepts in chemistry build upon each other. If you fail to grasp one concept, then you're going to fail to understand all the subsequent concepts that build upon that concept, creating a snowball effect of "I don't know's."

Don't let your "don't know's" pile up and try to learn everything the week before midterms. Learn the material the first time around and save yourself time and headaches later.

Tip 4:

Hack your sleep

Did you ever wonder why you can sleep for ten hours and still wake up feeling restless? There are many reasons, but one of the biggest factors is the time you went to bed.

Our body's rejuvenation phase occurs between 10pm – 2am. During that time, our cells repair and replenish themselves. Most of us in school normally sleep after midnight. That means most of us are only getting 1-2 hours of rejuvenative rest.

If you're sleeping after 2am, your body is barely getting any rest,, which explains why you wake up tired even after a long night sleep. Try to sleep before 12 so you at least get two hours of rejuvenative sleep. Apparently, one hour rejuvenative sleep is worth two hours of normal sleep.

Also, wake up earlier. I find that I work two three times more productively in the early morning. It is much easier to focus in the morning. Everywhere is quiet, your friends are asleep, and there are minimal distractions.

Even if you don't consider yourself a morning person, give this a try. You might be pleasantly surprised at what moving your bedtime back a few hours can do to your productivity.

Here are a couple more tips for better sleep

- Go to bed and wake up at the same time every day
- Develop a bedtime routine to let your body know it's time to wind down
- Wear an eye mask
- Download an app to limit blue light exposure at night. (I recommend F.Lux)

Tip 5: Apply Pareto's 80/20 Principle

If you've never heard about this principle, your life is about to be changed.

Pareto was an Italian economist who observed that 80% of the land in Italy was owned by 20% of the population. Why is this relevant at all? Well, the 80/20 principle doesn't only apply in economics. It applies in almost everything we do.

Roughly 80% of our results come from 20% of our effort. For us students, 80% of our grades come from 20% of our effort. In other words, 80% of our effort only account for 20% of our grade, which mean most students spend the majority on their time on assignment or work that determine a small fraction of their grade. Or 20% of the material you read will account for 80% of the material tested.

So how can Pareto's principle help you get better grades with less studying?

The key is to find the highest leverage activities, find the 20% of work/ assignments that are accounting for 80% of your grade. Then spend more time on those work/ assignment and less time on the majority that only account for 20% of your grade.

Tip 6: Attend office hours

This tip is blatantly obvious but most students never attend office hours. Office hours provide many benefits.

First, when you ask questions, you are getting answers from the person who will be writing your exams. I had teachers in the past even hint to me what will & won't be on the exam.

Second, most teachers can explain complex subjects in a way that's easy to understand in office hours even if they seem completely perplexing in class.

Third, attending office hours regularly is a fantastic way for your professor to get to know you. If you're applying for college or grad schools, you're going to need letter of recommendations later. You're way more likely to get a glowing letter of recommendation if the teacher knows you. Some teachers will give you a bump up if you're on the cut off for a letter grade if they know how hard you've been working.

Tip 7:

Ask classmates for help and help those in need

If you have any friends or classmates who are doing well in chemistry, ask them for help. Unless that person is a snob or jerk, they will be glad to lend a hand. Ask them how they study. Ask them what they do when they run into a problem they don't understand. Ask them to explain concepts that you don't understand.

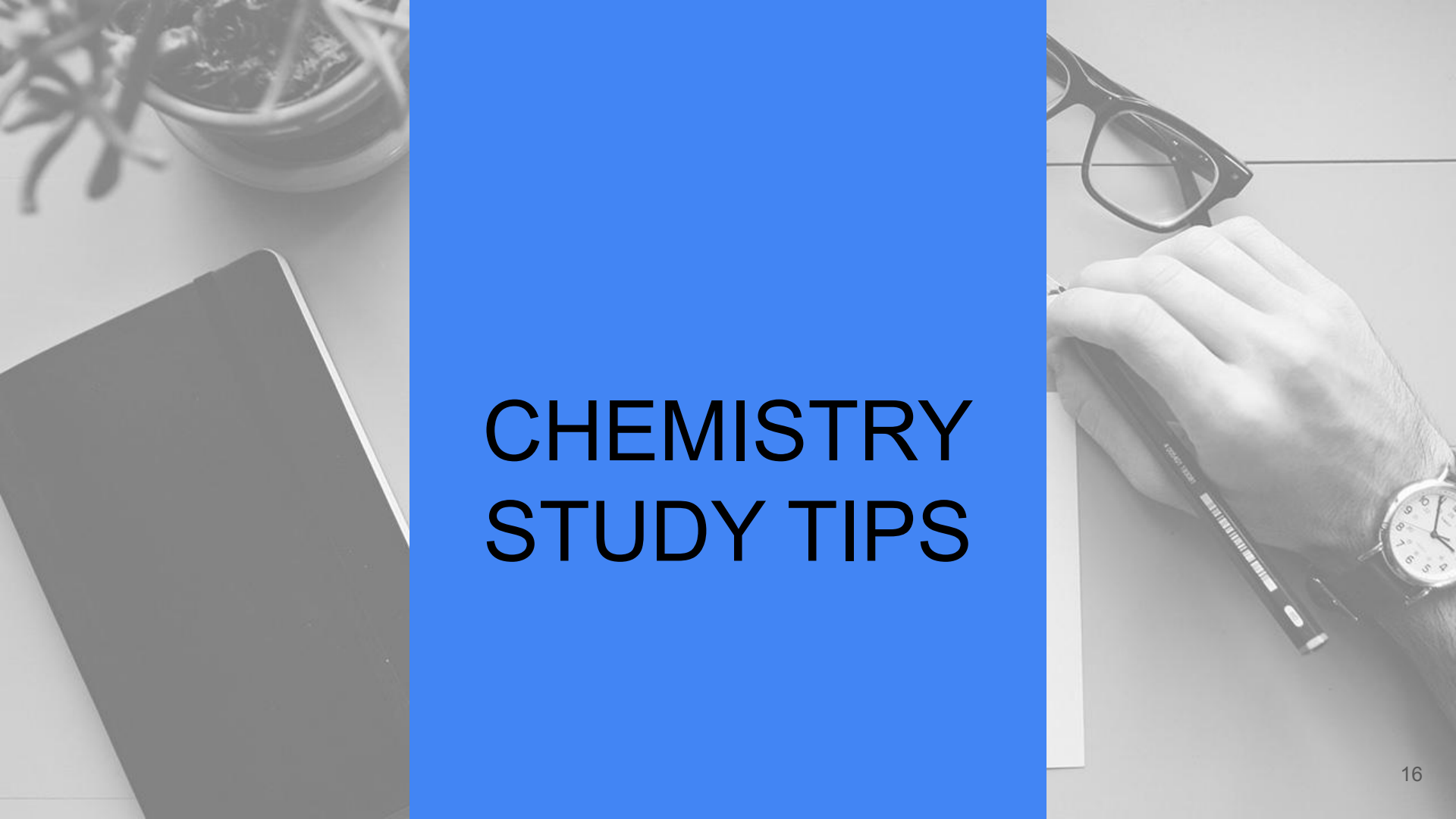
On the opposite end, help your friends and classmates in need. If you understand a concept well, explain it to someone who doesn't. You may find out in the process of teaching the concept that you don't truly understand it on a deeper level. The best way to learn is to teach.

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CHEMISTRY STUDY TIPS

Tip 8: Predict future test questions (how?)

As you're studying or doing homework, ask yourself "How can this concept or equation be tested?" Pretend you're the teacher and think about how you can turn a concept / equation into a question. For example, if you're learning about Boyle's law ($P_1V_1 = P_2V_2$), you can be asked to graph a P vs V curve or be asked how pressure and volume are related.

If you're working through a homework problem, ask yourself how can this question be phrased differently. For example, if you're dealing with a question that asks you solve for density and gives you mass & volume, think about how you would approach the question differently if you had to solve for volume given mass and density.

Teachers, like students, are lazy. They might just copy a question they found online, change the numbers slightly, and then put it on their exams. Try copy and pasting an exam question onto Google and see if there are any hits. Then google another exam questions and see if you get the same hit. If you do, then there's a decent chance you might find a future exam question on that website

Tip 9: Dedicate a specific amount of time to chemistry

This is another tip that can skyrocket your productivity and prevent hours of wasted time, especially if combined with 50-10-50-30 rule.

Dedicate a specific time period to study chemistry outside of lecture/ lab. Tell yourself, “I’m going to spend X amount of hours on chemistry everyday.” Unless something unexpected comes up, spend no more and no less than the determined time period on chem. There are two benefits.

First, it’ll speed up your work. If you know you only have X amount of time to study, you’re going to study faster so you can get your work done in time. There’s a name for this: it’s called Parkinson’s law.

Second, it’ll keep you on track and prevent you from falling behind. Most of the time, your specified time period will allow you to finish right in time. Other times, you might finish that day’s homework a bit earlier. Remember, you still have to spend the determined time period on chem. So in the latter scenario, review your notes for past lectures, work on something that isn’t due for a week, do some practice problems. Be proactive with your time.

Tip 10: Create an equation sheet

I've made one
for you [here](#)

Chemistry is filled with many equations with many different variables that are easy to mix up. Some chapters will bombard you with nonstop equations (I'm looking at you Thermodynamics).

As you're working through a section, create an equation sheet to keep track of all the equations you're learning. Don't just copy down the equation. Also note what units are used for each variable. Indicate what the equation is used for and what situations call for each equation.

For example, $q = mC\Delta T$. You might write units for q is joules, m is grams, C is $J/g^{\circ}C$ or $J/g^{\circ}K$, and ΔT is $^{\circ}C$ or K . You might also write that the equation is used whenever specific heat is mentioned or when you're asked to solve for heat with temperature change.

Doing this will help you keep track of equations you've learn and know when to use which equation. If you see a question you've never seen before, you'll be more equipped to approach the problem correctly.

Tip 11: Create a skills checklist

*I've made them
for you here and
here*

In addition to learning tons of equations, you'll also be learning tons of skills. Every problem you solve involves at least or multiple skills.

As you work through examples and homework problems, keep a checklist of skills you've learned. For example, if you're learning acid & base, some of the skills you're responsible for will be identify strong acid vs weak acid, calculating pH of strong acid, calculating pH of weak acid, etc. You might also want to include an example problem after skill.

This list will help you identify what you're responsible for and you can go through the checklist when you're studying to make sure you've covered your bases.

Tip 12: Utilize all your chemistry resources

Because millions of students have to take chemistry, there are a bunch of resources available. Here are some I recommend..

- [My YouTube Videos](#)
- [Conquer Chemistry Masterclass](#)
- [The Ultimate Chemistry Reference Sheet & Equation Guide](#)
- [Chemistry Semester 1 Skills Checklist](#)
- [Chemistry Semester 2 Skills Checklist](#)
- [Tyler DeWitt's YouTube Videos](#)
- [FreeLanceTeach YouTube Videos](#)
- [Khan Academy Chemistry Overview](#)
- [Organic Chemistry Tutor YouTube Videos](#)
- [Private Tutoring](#)



Who Am I?

Hi, I'm Michael!

I'm the person behind Conquer Chemistry and a specialized chemistry tutor located in the San Francisco bay area.

After getting a D+ on my first college chemistry midterm, I made it my goal to learn how to do well and ace chemistry. I ended up getting an A in the class, but more importantly, I learned how best approach studying to do well in chemistry.

Many students struggle with chemistry and think that it's a subject they'll never get. They think no matter how much time and effort they put into the class, they still won't do well in chemistry.

I don't buy that. I believe every student can excel in chemistry with the right guidance. If you're doing the right things, the results will follow.

My mission is enable every student out there to do succeed in chemistry without the stress or headaches.

If you are reading this ebook, you're probably already in the Conquer Chemistry Community. Congrats, you're in good hands! But if you're not, definitely head over [here](#) and sign up! I'll be sending study tips, chemistry shortcuts, study resources, step by step tutorial videos, and tons more.

I'll be providing a bunch of free resources and you can many free resources online, but if you're looking for personalized help to target your specific problems & difficulties, check out my [tutoring service](#). You'll receive my guidance every step of the way to make sure you achieve the grade you want.

Regardless, welcome on this journey as we conquer chemistry together.

A grayscale background image showing a hand holding a piece of chalk, writing on a chalkboard. The text 'Thanks for reading!' is overlaid in a large, bold, blue font. The hand is positioned on the right side of the frame, and the chalkboard has some faint, illegible writing on it.

Thanks for reading!

Any questions?

You can find me at:

conquerchemistry.com